REMARKS/ARGUMENTS

INTRODUCTORY COMMENTS:

In order to continue prosecuting the finally rejected claims of U.S. Patent Application Serial No. 09/712,818 (the "parent application"), the claims of this continuation-in-part application were amended in a Preliminary Amendment submitted on October 24, 2002, to correspond to the claims of the parent application. While the parent application was abandoned in favor of this continuation-in-part application, Applicants reserved the right to file a divisional application under 35 U.S.C. §121 directed to the nonelected subject matter of the parent application.

In the Office Action under reply, claims 1-9, 11-50, and 91-102 were examined. All pending claims stand rejected as follows:

(1) Claims 1-9, 11-50 and 91-102 are rejected under 35 U.S.C. §112, second paragraph, as indefinite;

(2) Claims 1, 5-9, 11-17, 21, 22, 30-32, 37-43, 45, 47-49, 91,92, and 96-102 stand rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,342,349 to Virtanen;

(3) Claims 2-4 and 33-36 stand rejected under 35 U.S.C. §103(a) as obvious over Virtanen in view of U.S. Patent No. 6,395,562 to Hammock et al. ("Hammock"); and

(4) Claims 1, 2-9, 11-13, 18-27, 31, 32, 37, 39, 40, 42-48, 50, and 91-95 stand rejected under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 6,284,459 to Nova et al. ("Nova") in view of Virtanen.

The rejections are addressed in part by the above amendments to the claims and are otherwise traversed for reasons that will be discussed in detail below.

THE ABOVE AMENDMENTS:

A number of amendments have been made to the specification and the claims. The specification has been amended to reflect the current status of the parent application. This minor update to the specification in no way introduces new matter.

Independent claim 1 has been amended to indicate that the claimed device is comprised of a substrate having a plurality of moieties each ***accurately*** attached to a designated site on a surface thereof, and that the accurate attachment of moieties to the substrate is achieved ***via application of focused acoustic radiation to one or more reservoirs each containing a moiety***

for attachment to the substrate surface so as to eject droplets therefrom toward the substrate surface. Acoustic array preparation techniques and their accuracy are generally discussed in the application, for example, on page 1, line 26, to page 2, line 16. A detailed example of an array preparation technique employing focused acoustic radiation is provided on page 27, line 4, to page 30, line 19.

Claim 45 has been amended to set forth a method for forming the device of claim 1 by providing a substrate containing machine-readable information, ***reading the machine-readable information from the substrate,*** and applying focused acoustic radiation to attach the moieties. Similarly, claims 105 and 106 have been added to set forth a method for forming the device of claim 1 by providing a substrate, ***physically associating the machine-readable information with the substrate, e.g., writing data to the substrate,*** and applying focused acoustic radiation to attach the moieties. In addition to the sections cited above in support for claim 1 as amended, support for these amendments may be found, for example, on page 26, lines 12-22.

Dependent claims 103 and 104 have been introduced to set forth that the machine-readable information physically associated with the substrate is no less than one kilobyte. These new claims are supported by claim 10 as originally filed and claim 1 as amended in the Preliminary Amendment.

Claims 11, 42, 43, 46-50, 92-94, 97, 99 and 100 have been amended to remove terminology to which the Examiner has objected, to correct claim dependencies, and to correct inconsistencies in claim terminology introduced by the amendment to claim 45. As such, no matter has been introduced in any of these formality-based claim amendments.

Thus, no matter has been introduced by way of any of these amendments and entry thereof is proper and requested.

STATUS OF THE CLAIMS:

Claims 1-9, 11-50, 91-106 are pending. Claims 1, 11, 42, 43, 45-50, 92-94, 97, 99, and 100 are currently amended. Claims 103-106 are newly added. Claims 2-9, 12-41, 44, 91, 95, 96, 98, 101, and 102 remain unchanged from the Preliminary Amendment of October 24, 2002.

REJECTION UNDER 35 U.S.C. §112, SECOND PARAGRAPH:

All claims stand rejected under 35 U.S.C. §112, second paragraph, as indefinite. With respect to claims 1 and 45, the Examiner states that the term "no less than about" is self-contradicting by contending that "no less than" and "about" encompass different ranges. Applicants disagree and submit that term "no less than about" is unambiguous to those of ordinary skill in the art. Indeed, according to the USPTO patent database from 1976 to present, the term appears in the claims of over 600 issued patents. Accordingly, claims 1 and 45 comply with the formal requirements of 35 U.S.C. §112, second paragraph, and the rejection of these claims has been issued in error.

In addition, the terms "additional magnetic medium" and "additional optical medium" in claims 42 and 43 are objected to because these claims depend from claim 1, which does not recite either a magnetic medium or an optical medium. While not wishing to acquiesce in the rejection, but for the sole purpose of expediting prosecution, Applicants have rewritten the claims so as to eliminate the term "additional." Thus, all amended claims are definite, and withdrawal of all indefiniteness rejections is respectfully requested.

THE 35 U.S.C. §102(E) REJECTION OVER VIRTANEN:

Claims 1, 5-9, 11-17, 21, 22, 30-32, 37-43, 45, 47-49, 91, 92, and 96-102 stand rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,342,349 to Virtanen. In issuing this rejection, the Examiner cites the Abstract and column 5, lines 14-27, as disclosing a device comprising a substrate having a plurality of molecular moieties attached thereto and containing machine-readable information relating to the moieties, wherein the information is physically associated with the substrate. In addition, the Examiner cites column 4, lines 13-35, as disclosing that the machine readable information is on a CD or DVD which has a capacity to store greater than 1 kilobyte of data. Furthermore, various other sections are cited as disclosing the elements of the pending dependent claims.

It is axiomatic that for a cited reference to anticipate a claim, the reference must disclose each and every element of the claim. *In re Spada,* 15 USPQ2d 1655 (Fed. Cir. 1990). Unless there is "identity of invention," such that all claim elements are disclosed in a single reference, there can be no anticipation under 35 U.S.C. §102. Here, independent claim 1 has been rewritten as a product-by-process claim directed to a device comprising a substrate having a plurality of

moieties each ***accurately*** attached to a designated site on a surface thereof ***via application of focused acoustic radiation*** to one or more reservoirs. Similarly, claims 45 and 105 are directed to a method for forming the device of claim 1 that involves ***application of focused acoustic radiation*** to eject droplets toward the substrate surface, thereby ***accurately*** attaching the moieties to the designated sites. Virtanen, on the other hand, does not contain disclosure relating to use of ***focused acoustic radiation*** or any teaching relating to the formation of devices with ***accurately attached moieties***.

Applicants submit that the device of claim 1 is structurally distinguishable from devices described in Virtanen. As discussed in the specification on page 2, lines 9-16, technologies employing focused acoustic radiation enable extraordinarily accurate and repeatable droplet deposition of droplets, and, as further discussed on page 26, lines 6-11, represents a preferred technology for forming the device of claim 1. That is, the devices formed using focused acoustic radiation do not suffer from structural deficiencies associated with misdirected droplets and inaccurate attachment of moieties to the substrate surface.

In contrast, the device of Virtanen, as discussed in column 43, lines 16-19, is formed using ordinary ink-jet printing techniques. Inkjet technology involves heating or using a piezoelectric element to force a fluid through a nozzle in order to direct the ejected fluid onto a surface. Forcing nucleotidic or other biomolecular moieties through nozzles creates shear forces that can alter molecular structure. In addition, nozzles are subject to clogging. Clogged nozzles, in turn, can result in misdirected fluid or ejection of improperly sized droplets. Because inkjet technologies are simply incapable of achieving the accuracy associated with droplet deposition techniques employing focused acoustic radiation, the devices of Virtanen are structurally deficient compared to the device of claim 1. In other words, Virtanen cannot be reasonably read to disclose devices having a substrate with moieties accurately attached to designated sited on a surface thereof through the use of focused acoustic radiation.

Accordingly, Virtanen does not anticipate any of the pending claims, and Applicants respectfully request reconsideration and withdrawal of this rejection.

THE 35 U.S.C. §103(A) REJECTION OVER VIRTANEN IN VIEW OF HAMMOCK:

Claims 2-4 and 33-36 stand rejected under 35 U.S.C. §103(a) as obvious over Virtanen in view of Hammock. In issuing this rejection, the Examiner repeats her characterization of

Virtanen and contends the elements of claims 2-4 as nonfunctional. While admitting that Virtanen is silent regarding the density of moieties recited in claims 33-36, the Examiner nevertheless cites Hammock as providing the teaching relating to the density of moieties in column 5, lines 60-65, and claim 7.

In response, Applicants point out that when more than one references is cited to support an obviousness rejection, the references together must teach or suggest all the claim limitations. In this instance, the criteria for obviousness have not been met because Hammock does not provide any disclosure that would cure the deficiencies of Virtanen. That is, Hammock fails to provide any disclosure relating to a device comprising a substrate having moieties ***accurately*** attached thereto through the use of technologies employing ***focused acoustic radiation.*** Instead, the disclosure in Hammock relating to the attachment of moieties to a substrate surface is limited to ordinary fluid dispensing techniques such as ink-jet printing and pipetting. See column 3, lines 19-42. Thus, even if these two patents were properly combinable, they do not teach the device of claim 1 or the use of focused acoustic radiation to form such devices. Thus, Applicants request withdrawal of this rejection.

THE 35 U.S.C. §103(A) REJECTION OVER NOVA IN VIEW OF VIRTANEN:

Claims 1, 2-9, 11-13, 18-27, 31, 32, 37, 39, 40, 42-48, 50, and 91-95 stand rejected under 35 U.S.C. §103(a) as obvious over Nova in view of Virtanen. In issuing this rejection, the Examiner cites column 42, lines 46-67, and FIGS. 26 and 27 as disclosing a device comprising a substrate having a plurality of molecular moieties attached to a surface and containing machine-readable information relating to the moieties wherein the information is physically associated with the substrate. In addition, the Examiner cites other sections of Nova as disclosing the elements of the pending dependent claim. While admitting that Nova is silent regarding a substrate containing no less than 1 kilobyte of machine-readable information, the Examiner relies on Virtanen to provide the missing teaching relating to the amount of machine-readable information.

In response, Applicants submit that Nova, like Virtanen and Hammock, also fails to provide any disclosure relating to a device comprised of a substrate having moieties ***accurately*** attached thereto through the use of technologies employing ***focused acoustic radiation.*** From Applicants' review of Nova, it appears that this patent provides effectively no disclosure relating

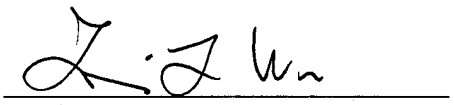
to any means for attaching moieties to a substrate surface. Thus, Nova also fails to cure the deficiencies in Virtanen, and the patents together do not teach or suggest the subject matter as claimed. Accordingly, Applicants request withdrawal of this rejection

CONCLUSION

For all of the above reasons, it is submitted that the application comports with all requirements of 35 U.S.C. §112, and that the pending claims define an invention that is patentable over the art. As the application should now be in condition for allowance, a prompt indication to that effect would be appreciated.

If the Examiner has any questions concerning this communication, she is welcome to contact the undersigned attorney at (650) 330-0900.

Respectfully submitted,

By: 

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